

Notice of Allowability

Application No.

10/799,297

Examiner

Karen E. Toth

Applicant(s)

BRODNICK ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 4 September 2007.
2. ☒ The allowed claim(s) is/are 1-22, 24 and 25.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application
- ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
- ☒ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other _____


CHARLES A. MARMOR II
SUPERVISORY PATENT EXAMINER
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DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see the remarks and amendment filed 4 September 2007, with respect to claims 13-17, and 20-22 have been fully considered and are persuasive. The rejection of these claims has been withdrawn.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Joseph Kuborn on 25 October 2007.

The application has been amended as follows:

Claims 26, 27, and 31-36 have been cancelled.

Allowable Subject Matter

3. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to anticipate or make obvious the structure of claims 1-12, 18, 19, and 25, including, *inter-alia*, a system for monitoring a human's respiration rate having three electrodes that may be used to monitor a respiration parameter by measuring impedance between the first and second electrodes, using the third to

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eliminate a common mode voltage, or by measuring the impedance between the third electrode and either of the first or second electrodes.

The prior art of record fails to anticipate or make obvious the structure of claims 13-17 and 20-22, including, *inter-alia*, a system for monitoring a human's respiration rate comprising three electrodes with two on opposite sides of the thorax and the third a RL electrode, where a first conductive path crosses the subject's lungs between the first two electrodes, and a second path exists between the third electrode and either of the first two electrodes, where the third electrode also is configured to reduce or eliminate a common mode voltage present in signals from the first and second electrodes, and further comprising a processing circuit configured to detect fluctuations in impedance in either of the conductive paths and derive a respiration signal from the fluctuations.

Kearns discloses an invention having a similar structure but is only capable of monitoring by using the third electrode to eliminate common mode voltage. Belalcazar (US Patent Application Publication 2004/0102712) discloses a similar system having three electrodes, where impedance is measured between the third electrode and each of the first and second electrodes, and the resulting impedances (3 to 1, and 3 to 2) are compared to eliminate a common mode voltage. Alkawwas (US Patent Application Publication 2002/0045836) discloses a similar invention that is used to monitor a patient's ECG. Harry (US Patent Application Publication 2002/0099277) discloses a similar system having three electrodes, but only compares impedances between any two of the electrodes. Rantala (US Patent 6553250) also discloses a similar system

capable of operating in multiple modes using a plurality of electrodes and a common mode electrode, but does not disclose the specific operating modes claimed here.

The prior art of record fails to anticipate or make obvious the structure of claim 24, including, *inter-alia*, a monitoring system using electrodes to monitor a patient's respiration, where the electrode inputs generate, among other signals, an abdominal respiration signal, and the system further comprises a display that may display a parameter associated with the abdominal respiration signal.

Bornn (US Patent 5353793) discloses a system having electrodes on the patient's thorax and abdomen, but does not disclose using signals from the electrodes to monitor abdominal breathing; rather, Bornn discloses using piezoelectric transducers to monitor abdominal breathing, and using the electrodes to monitor the patient's ECG. Ricks (US Patent 4784162) discloses a system having electrodes and capable of monitoring abdominal breathing, but the electrodes are used to monitor the patient's ECG and the abdominal breathing measurements are taken using piezoelectric sensors.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent Application Publication 2006/0155354 to Heath, which discloses similar inventions.

US Patent Application Publication 2007/0043303 to Osypka, which discloses similar inventions.

US Patent 6415174 to Bebehani, which discloses similar inventions.

US Patent Application Publication 2004/0073127 to Istvan, which discloses similar inventions.

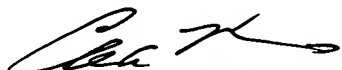
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen E. Toth whose telephone number is 571-272-6824. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor, II can be reached on 571-272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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